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An

Inaugural Essay

on

Cynanche Trachealis.

By

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of

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of

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in

The University

of

Pennsylvania.

And year of our Lord 1828.

of
Cynanche Trachealis.

When about to engage in the consideration of this subject; I am met with no small difficulty in deciding, as to the most suitable manner of dividing it: for on the one hand, we find it distinguished into idiopathic and symptomatic; that is, when it is primarily and to a considerable extent situated in the trachea, or when it discovers itself as a consequence of some other disease, such as Tubercle, Scarlatina, Cynanche Maligna &c. for it is said to be accompanied with or an attendant on such diseases in some instances. Again, we find it divided into spasmodic, and inflamatory, and it is under the head of this last distinction, that Doctor Brown advances an opinion and says, there is perhaps, no case of Croup in which muscular action is not concerned, only in some instances, the inflamatory symptoms are more prominent than in others; and in allusion to the same, Doctor Chapmans opinion goes to prove, that in the majority of instances where the attack is sudden, it partakes of the nature of spasm, and that time is requisite to induce inflamation, which consist in an altered action of the vessels, effected comparatively

by a slow process

by a show process. After a due consideration of such opinions and modes of division, I shall only allow myself the privilege of asserting, that Cynanche Tracheales as its name implies, consists in an inflamatory affection of the mucous membrane lining the Trachea and other parts connected therewith, raised to such a degree of excitement as to stimulate the vessels to throw out coagulated lymph, instead of inducing an increased and altered secretion, according to the customary action of this membrane.

This inflamation does not always confine itself within the Trachea and Larynx, but in numerous instances is said to extend to the Bronchia, throughout their minute ramifications, and surface of the lungs, generating an expectoration which is described as being somewhat membranous and partly of a fluid resembling pus, attended by a train of peculiar symptoms which I shall endeavour to describe in another part of my subject.

The complaint under review is principally confined to the period of childhood, and as such I shall chiefly limit my consideration. Its attacks are most frequent in infancy, or before the fifth or sixth year, and Doctor Cullen thinks it rarely if ever attacks children till after they are weaned, and that there is no instance of its occurrence above the age of twelve

years: I cannot exactly coincide with the Doctor in this opinion, and beg leave to differ thus far, in as much as my own limited knowledge, though founded upon short and imperfect experience, as is natural to suppose, furnishes me with a very satisfactory exception to the rule, which is this: I am fully aware, and perfectly intimate with two cases of a very formidable nature too, which fell under the care of my preceptor and which occurred in infants at the breast. On another occasion I witnessed it in a young man between eighteen and twenty two, who had been subject to attacks at various intervals from a very early age. Independant however of such evidence which certainly is of a conclusive kind, I should have been very cautious and reluctant, in presumeing an opposition to such high and respectable authority as Doctor Cullen, had I not considered myself justified from the cases which I have mentioned, but most particularly, as I am ably supported by the opinion of Doctor Dewees who admits as I am anxiously willing to do, that the Doctors rule as a general one is very good.

Some particular sections of country seem to be more subject to this disease than others, and as evidence of this we have it stated by nearly every writer that it prevails most and to a greater extent

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in the neighbourhoods which border on the sea shore, where the air is loaded with moisture, and the changes of temperature more sensibly and readily felt. It is on the other hand by no means a stranger in many inland situations, particularly such as are approximated to large marshes, & such as we have bordering on the small rivers in that part of Virginia where I reside. It is also represented as observing in a great measure particular seasons of the year, as the winter and spring at which time the weather is usually stormy and blowing, and subject to sudden transitions from heat to cold, in this way attacking the system when illy prepared to combat the disagreable impressions made under such circumstances.

Croup is conceded by all to be a noncontagious disease, and prevails most generally as an epidemic. It seems however to be peculiar to some families, and a child having once had an attack of it, is subject to returns, at uncertain periods from any slight exposure to cold or damp weather, and this perhaps may be the most appropriate point of my subject, to take under consideration the causes which are generally presented as exciting one of this disorder; and to judge from what I heard this moment said, from the

season of year at which it commonly exists, together with its general nature and character, we cannot but readily come to the conclusion, that, exposure to cold or damp weather, wading in cold water, going thinly clad with the neck bare, are among the chief of them, and probably the only, we can introduce as uniformly applicable: though Doctor Chapman furnishes us with the most direct and satisfactory proofs, that its occurrence may be traced in many instances, as arising from an undue quantity of heavy and indigestible food taken into the stomach a short time before going to bed, and that it is also caused by the presence of worms, or any other offending matter of a similar nature.

Concerning the appearances discovered on a post mortem examination of those who have died from Croup, I have nothing of my own to advance, but upon the authority of those deserving particular attention, we find it stated that on opening the bodies of such, it is not unusual to find the lungs in a healthy state, though in others, they will be seen inflamed at particular points on their surface and occasionly adhering to the pleura; in tracing the Bronchia throughout their minute ramifications they may be found filled with

mucus which is of a firm and dense consistence and this continuing up the Trachea and Larynx constitutes the membranous like coating which was mentioned in a foregoing part of the subject, and whose presence has been disputed or rather doubted by very high authority; though when in consideration of the same, Doctor Dewees says, no one will doubt the formation or existence of a membrane in cases of death from Croup, but such as are not in the habit of investigating the nature of diseases by dissection; and goes on to state that he had witnessed it in more instances than one, which was entirely sufficient to prove that it sometimes existed.

This disease may attack in one of two ways, first by insiduously stealing on the child and its most prominent feature being only a slight, though peculiar hoarseness, discovered when the person coughs, and which may continue for several days without undergoing the slightest change, until perhaps the application of some exciting cause, such as cold or damp weather, or other means calculated to put an improper check to perspiration: then all giving birth to more formidable symptoms, as difficulty of breathing aggravation of cough, without the aid of expectoration, and consequently fever. This form of attack is generally longer

in running its course, than the one I shall next consider, and is thought to be less obedient to the power of medicine. In the second place, it may attack with the most alarming suddenness, where no such onset was anticipated, and when thus sudden in its appearance, will menace life from the moment of attack, and if we do not promptly arrest its marches, which is terribly rapid, will but too frequently triumph in death; when thus sudden and unexpected, the patient will be harassed with a peculiar wheezing, sonorous inspiration, thought by some to resemble the crowing of a cock, and by others compared (more fitly I think,) to the braying of an ass, or many other similar sounds. The voice will likewise have stridulous and interrupted, the cough in this case is also, hoarse and dry, there is great difficulty of breathing with other febrile symptoms.

When the child happens to be old enough to describe his feelings, they will be found to be such, as result from the presence of such symptoms as I have mentioned: but in early infancy, it discovers itself by disquietude, restlessness, starting out skin, and occasional heaving as if endeavouring to vomit. — Under this form of attack

from the first the pulse is frequent, and soon becomes corded and tense, the patient is restless and evinces much anxiety, complains of great thirst, the face is flushed with the eyes suffused, and often a great degree of coma comes on, from which the child is aroused by sudden fits of coughing and a sense of suffocation, with considerable agitation; for croup seems often to be attended with fits of exacerbation, during which the heavy, sonorous inspiration is exchanged for a violent struggle, in which the child makes the crowing, or braying noise as mentioned, and provided it be of sufficient age and strength will rise up, and cling instantly to the nearest object about it, looking with a fixed, anxious and pitious eye, thereby expressing what its voice cannot utter.

When the disease is more mild the face during the remission will be somewhat pale: when otherwise it is much flushed, and before death assumes a blue or purple colour, while the lips become livid.

There is considerable variety in the duration of croup, in some instances, it proves fatal in a few hours, in others not for a week, but most commonly in a day or two. Relative to this, much of course will depend on the degree of inflamation

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the violence of spasms, together with the strength and constitution of the patient. In forming a correct prognosis in this affection, we shall experience considerable difficulty, though as a general rule, in those cases where the cough is not so sonorous and attended with free and early expectoration, the fever moderate, and surface relaxed, we may hope for a favourable crisis; and also when the general symptoms are so alleviated at times, as to discover a perceptible intermission.

I might go on to a much greater length in noticing the many peculiarities of the disease in question, but deem it unnecessary and nonessential, and shall therefore hasten to the consideration of the treatment most universally recommended, and that which has proved most uniformly successful. From the appearances discovered on dissection, and the symptoms which commonly attend, together with a due consideration of the most common exciting causes, there can be little doubt of croup consisting in an inflamatory affection of the mucous coat lining the trachea, and other parts immediately connected therewith, attended by a spasmodic contraction of the muscles, as a consequence thereof. admitting such to be the fact then, which we cannot but readily do, our treatment must be such, as calculated

to meet like indications, and in the incipiency of an attack our strenuous endeavours must be directed to the adoption of such measures, as best calculated to diminish the inflamation, and increased action which prevails throughout the mucous coat of the Trachea, extending often to the adjacent parts, which may be affected in the same manner, and to the same extent: and to answer our intentions in this respect, the employment of both general and topical bloodletting, aided by the use of Emetics, purgatives, Blisters, rubefacients, the warm bath &c will be implicitely, and imperatively demanded.

Which of the two ways, (I have already mentioned) the disease may make itself known, the latter part of evening after a short, but disturbed sleep, and about two or three o'clock in the morning, will be found as the usual time of its declaration. From this we are induced to apprehend as the usual time of its attacks, and the moment the croupy sound be heard, we should lose no time in the exercise, and application of such means as advised at this particular juncture, and fortunately they are such, as may be obtained on any occasion, or in any family

the external throat should be rubed with the spirits of turpentine, Hartshorn, or any thing else of a similar nature that may be most convenient. It might also be of considerable advantage to envelope the neck in flannel, as calculated to ward off many sources of aggravation to the disease. These applications must be repeated if the first does not promise relief, so soon as the effects of the first shall have subsided, for it is important that the rubefacient effect be not carried to the extent of blistering, where not required.

To aid these means in accomplishing the end desired, it will be often necessary to administer the Wine Syrup, or the squill in some other of its forms, in doses proportionate to the age of the child, and circumstances of the case, and as calculated to induce expectoration, or excite vomiting, as shall be thought necessary.

It may be useful to observe, that the remedies as mentioned, will but too often prove unavailing, though judiciously conducted, and vigilly persevered in; in consequence perhaps of the proper time for their application being lost, or that we have not seen the case until far advanced, and the urgency of symptoms, calling for more direct and powerful treatment, rendering it at this juncture that we are compelled to resort to the use of blood letting, and other means as shall be directed.

Concerning the utility, and importance of blood letting in this disease. It is conceded by all, with few exceptions, (which I shall consider presently) to be the primary, and by some whose opinions are founded on experience, is said to be the only one in which we can fully confide. though, as is the fate of every other remedy, some place little faith in its utility, and as no one remedy can reasonably be supposed to prove uniformly successful in putting a stop to the direful tendency of so truly formidable a disease as Croup generally is, it may in all probability be through this inconsiderate injustice that it has fallen into discredit with those few, and as a substitute for it, they advise the tincture of opium in doses proportionate to the violence of symptoms, and recommend it as being likely to afford relief as speedily as venesection or any other means; though so far as I am entitled to an opinion, think both general and topical bleeding with other antiphlogistic treatments by far to be preferred. Notwithstanding its general utility however, there is some caution necessary to be observed in its application, which is to refrain from it in certain conditions as by its use you might increase suffocation and as a consequence hasten death. and the second is, that the blood be drawn by the lancet and not by leeches

though in cases where the lancet cannot be conveniently used, in consequence of the peculiar prejudice of the parents, or on account of the age or fleshiness of the child; leeches may be of advantage when applied to the affected region.

It is strenuously advised to draw blood from the jugular vein, this being rather inconvenient, and almost always objected to either by the patient himself, his parents or other friends, we shall find ourselves compelled on most occasions, to detract it from the arms; and should a mitigation of the symptoms not result from the first bleeding, it will be essential to resort to it again and again, until the desired effect shall be produced: and in cases where the symptoms are very urgent, to this and that to an exceedingly great extent will be found essentially requisite.

After copious and repeated venesections, a blister to the throat is thought highly beneficial, and is of infinite praise in the hands of some. I willingly admit all this under a general consideration, though, I have never seen a case where they could not often be dispensed with, and other means better suited to the tender infant, and little less beneficial substituted.

Emetics must claim our attention, and those generally recommended,

and which have proved most uniformly successful, are Ipecac, Tartar Emetic, and occasionally the Sulphate of Copper. relative to this last I have nothing to say, and the two former will chiefly engage our attention, which are highly and deservedly extolled by the majority, while the remainder hold little confidence in their utility. So far however as my limited knowledge and researches, relative to their beneficial effects justifies an opinion; I am inclined to consider them indispensably useful in every case where the features of the disease are state prominent. Even in advanced stages, they appear to move by a mechanical power, the Lymphatic membrane which is said to be generated in croup. Many of the expectorants have been used as a substitute for Emetics, but by no means with a result of equal benefit. These however do more or less good in some instances, and when it may be thought necessary to resort to them, those commonly prefered are Senega, and some of the preparations of Scilla maritima, to assist the expectorating process, and produce a relaxation of the surface, which is important to be attended to; diaphoretics will be very useful, such as a few drops of the vinum Ipecac,

or a solution of tartarized antimony, the last is to be preferred, and the best mode of administration is, in suitable quantity every one or two hours, until it inclines to nausea. To aid and increase the effects of such medicine, the warm bath is of the highest value and should never be lost sight of.

When we shall have exercised all the means pointed out, to a full and perfect extent, without having the happiness to arrest the progress or abolish symptoms we must resort to purgatives, and more particularly if the bowels be costive, which is often the case, and of all belonging to this class, I should rather to recommend Calomel as most uniformly beneficial, and if applicably used, will be productive of good when all others fail. I can recommend Calomel in very positive terms, as I know a case wherein the lancet, leeches, and the warm bath, had been fully and promptly exercised the one evening, in defiance of which, on the day following the child continued distressed, with the hoarse sonorous and laborious inspiration, till the effects of a moderate dose of calomel had been developed, when all the disagreeable symptoms disappeared, without a relapse of the disease.

Doctor Hamilton asserts, when considering the beneficial effects of mercury in croup, that in every case where he administered

and this, I think a fit place to mention, that it is of infinite importance to observe, that by neglecting the means advised, even for a day or two, and trusting to those which are trivial and inefficient, the inflamation will continue to proceed with rapid strides, and the physician will be reduced to the painful necessity of witnessing the death of his patient; when by promptness and energy his life might have been preserved: for with me even little knowledge, substantiated by many able and respectable opinions, Croup in its incipiency, appears to be as much under the control of early and copious venesection, emetics and purgatives &c. as most other inflamatory diseases.

Thus far have I ventured on the consideration of Croup, both as to its nature & peculiarities, as likewise the mode of treatment I think most generally suitable, and being fully sensible of my incompetency to the task, must conclude with much candour and anxious desire, that it may be found worthy of the kind attention, and may meet the sanction, of my esteemed and revered preceptors.

it previous to the occurrence of lividness of lips, and other symptoms which are indicative of approaching dissolution, that he most invariably succeeded in curing the disease; and the mode of proceeding adopted and practised by him, was first to place the patient in a warm bath, say from 80 to 100 Fahrenheit, and after the usual forms, give from one to five grains of Calomel as shall be found suitable to the age, strength &c of the child, very hour until an operation be accomplished, or the breathing be relieved, when it must be gradually discontinued, allowing at first two, then three, four and five hours to intervene each dose.

This mode of treating Croup as pointed out, & recommended by Doctor Hamilton, is no doubt an excellent one, and deserves very strict attention, but from the leading symptoms, and prominent features, in most of the cases I have been favoured with an opportunity of seeing, it appears generally necessary, and in some instances, of actual demand, to premise blood letting, followed by an emetic in order to relieve spasm, and increase and facilitate expectoration.

By using the remedies I have pointed out, judiciously and promptly, we shall commonly avert the progress of croup.